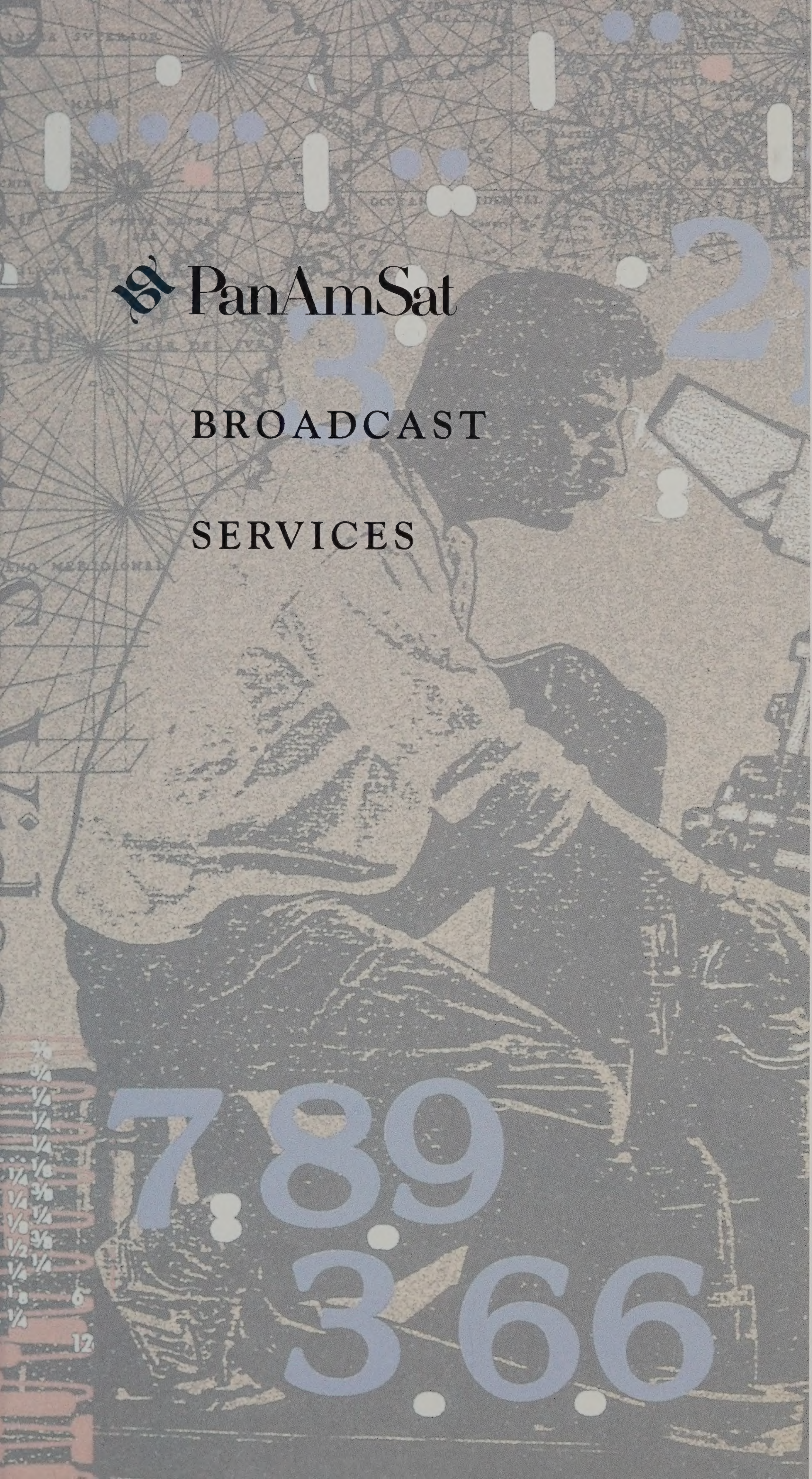
PanAmSat

GLOBAL
SATELLITE
SYSTEM

PanAmSat

BROADCAST SERVICES



PANAMSAT BROADCAST SERVICES

With the PanAmSat Global Satellite System, broadcasters finally have it all: the power of domestic satellites, the reach of an international system and the flexibility to create, design and control their own networks. All this, plus end-to-end cost savings that result from private ownership and technology designed to meet today's broadcasting needs.

The PanAmSat Global Satellite System, the world's first private international satellite system, is designed expressly for the video industry worldwide. The current PAS-1 satellite has served the Atlantic Ocean region since 1988. In addition, three new HS 601 satellites, built by the Hughes Aircraft Co., will provide high-powered transmission capacity that is tailored to broadcast requirements in the Pacific, Atlantic and Indian Ocean regions.

PanAmSat is the only satellite system offering on-demand, specialized communications services on a global basis. Now broadcasters and programmers can transmit and receive signals from virtually anywhere in the world with high-quality satellite communication services that are reliable, cost effective and easy to use.

PanAmSat offers broadcast services on a full-time, part-time or occasional basis for applications such as broadcast television, program distribution, special events and satellite news-gathering.

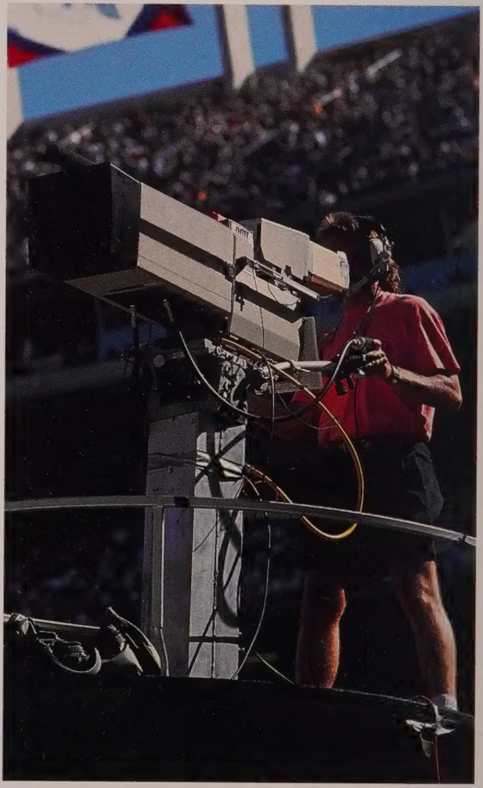
Our dedicated capacity is particularly suited for:

- Broadcasters
- Pay TV Services
- Cable Networks
- Program Syndicators
- Special Interest Programming
- Radio Networks

Dedicated Capacity
PanAmSat provides customers with dedicated capacity on a flexible full-time or part-time lease basis. Since ours is a private satellite system- free of restrictive international tariffs and usage limits - customers can tailor the access plan to meet their specific needs.

Long-term, Full-time Use
PanAmSat offers full-time use contracts covering periods of 5, 7, 10 years or longer. This gives customers guaranteed satellite access 24 hours a day, 365 days a year.

Long-term, Part-time Use
PanAmSat offers part-time use contracts for periods of one year or longer.



Applications

PanAmSat's Broadcast Service offers a wide range of opportunities to create and expand domestic, regional or global program distribution networks. Our service makes it possible to link major urban centers on a national or international level and to expand networks to reach remote population centers within a country. With satellites covering all three ocean regions, PanAmSat can broadcast or syndicate programming throughout the world. Plus, the high power and advanced design of the PanAmSat satellites permit on-site use of small, inexpensive earth stations for both transmission and reception.

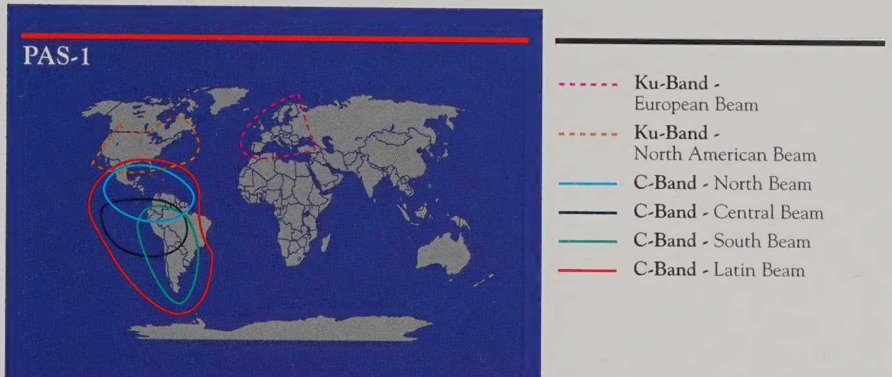
Using our service, customers can:

- Distribute live sports or special events programming globally
- Initiate satellite news-gathering to transmit up-to-the-minute news reports directly to regional news distribution centers
- Establish national, regional or international video-conferencing networks
- Provide direct-to-home reception via small, low-cost earth stations
- Access new markets in special interest programming for SMATV, hotels and cable systems
- Reach new listeners for national and international radio networks
- Utilize specialized broadcast applications, such as business TV, distance learning, business conferencing and internal corporate communications applications

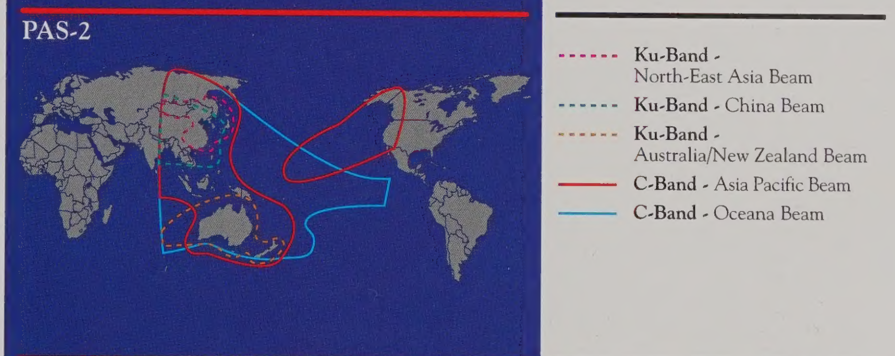
Intercontinental Service

By leasing an international transponder from PanAmSat, customers can receive the same quality and reliability for their international service that they've come to expect from domestic satellites.

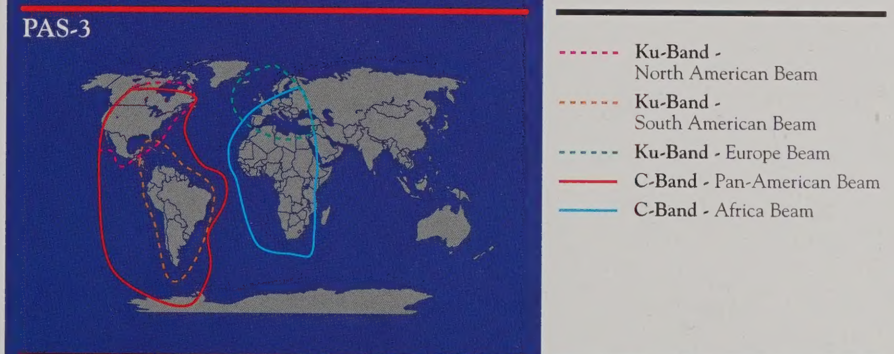
Ku-Band and C-Band Downlink Beams



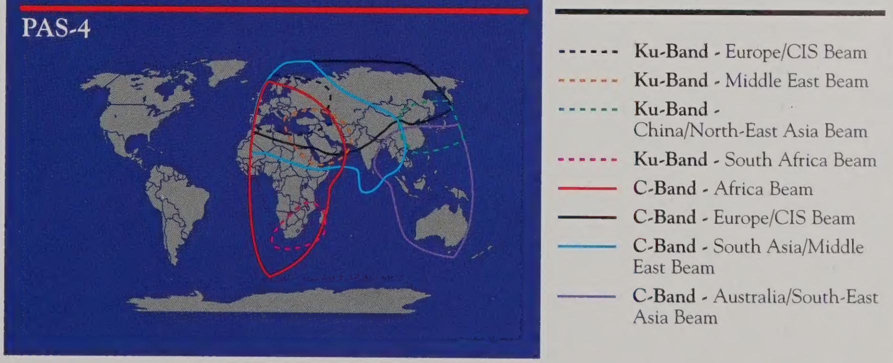
- - - - - - **Ku-Band -** European Beam
- - - - - - **Ku-Band -** North American Beam
—— **C-Band -** North Beam
—— **C-Band -** Central Beam
—— **C-Band -** South Beam
—— **C-Band -** Latin Beam



- - - - - - **Ku-Band -** North-East Asia Beam
- - - - - - **Ku-Band -** China Beam
- - - - - - **Ku-Band -** Australia/New Zealand Beam
—— **C-Band -** Asia Pacific Beam
—— **C-Band -** Oceana Beam



- - - - - - **Ku-Band -** North American Beam
- - - - - - **Ku-Band -** South American Beam
- - - - - - **Ku-Band -** Europe Beam
—— **C-Band -** Pan-American Beam
—— **C-Band -** Africa Beam



- - - - - - **Ku-Band -** Europe/CIS Beam
- - - - - - **Ku-Band -** Middle East Beam
- - - - - - **Ku-Band -** China/North-East Asia Beam
- - - - - - **Ku-Band -** South Africa Beam
—— **C-Band -** Africa Beam
—— **C-Band -** Europe/CIS Beam
—— **C-Band -** South Asia/Middle East Beam
—— **C-Band -** Australia/South-East Asia Beam

PanAmSat's Intercontinental Service allows for the design of the most cost effective and flexible networks available today. By simply placing a small earth station where you want, you can have direct satellite access to any location in our coverage area.

Domestic/Regional Service

PanAmSat's Domestic Spot Beam and Regional Service provides the equivalent of a dedicated communications satellite for individual countries or groups of countries at a fraction of the cost.

This national or regional coverage offers: access to the most remote population centers; the communications link for extensive educational networks; capabilities to establish business, military and government video-conferencing networks; direct-to-home television reception; and the ability to utilize multiple uplinks for regional broadcast and news distribution.

PanAmSat Assistance

PanAmSat is committed to providing customers with the most advanced satellite technology and comprehensive services available today. Today, PanAmSat is available to assist customers in establishing and managing their satellite networks. Contact us today to discuss your international communications needs or to receive additional information on PanAmSat's services.

PANAMSAT SATELLITES

Manufacturer:	**Satellite Bus:**
Hughes Aircraft Company	HS 601

	Ku-band	**C-band**
Transponders:	16 x 54 MHz	16 x 54 MHz
Cross-Strapping Capability:	Up to 8 Transponders Ku to C	Up to 8 Transponders C to Ku
Transponder Output Power:	63 Watt	34 Watt
Redundancy:	HPAs 10:8 Receivers 4:2	HPSs 10:8 Receivers 4:2
Beams:	3 Uplink 5 Downlink	3 Uplink 5 Downlink

Satellite	**Ocean Region**	**Orbital Location**
PAS-1*	Atlantic	45° WL / 315° EL (in operation)
PAS-2	Pacific	192° WL / 168° EL
PAS-3	Atlantic	43° WL / 317° EL
PAS-4	Indian	292°/ 288° WL / 68°/ 72° EL

*GE Astro Series 3000

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PanAmSat's New Mexican Wave

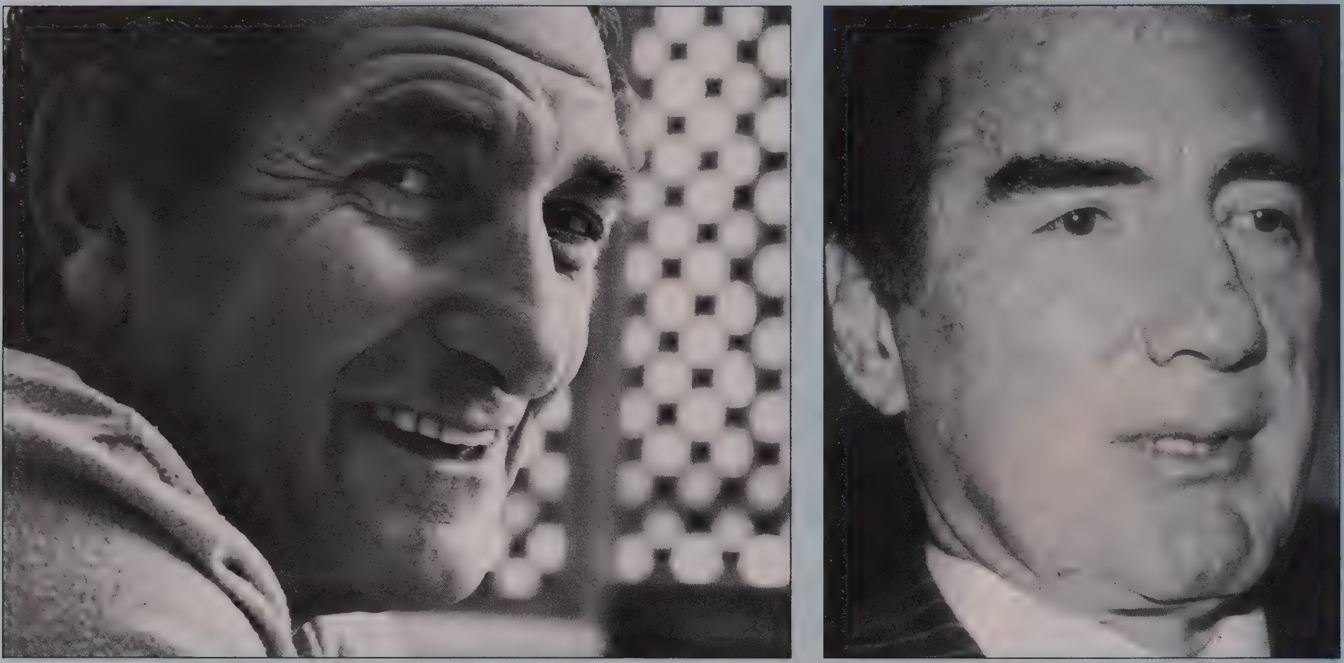
The Azcárraga family has stamped Televisa all over the broadcasting markets of Mexico and Latin America. Its equity stake in PanAmSat could make it a household name all over the world. By Chris Dziadul

In January this year PanAmSat finally shook off the financial straightjacket which had denied it the scope to build on its mantle as the world's first privately-owned global satellite system. With no new funds available to add to the in-orbit PAS-1 satellite, PanAmSat founder and owner Rene Anselmo had been forced to seek new equity partners. The lifeline, which has enabled PanAmSat to go ahead and commission three new Hughes HS601 satellites, was thrown by Mexico's Televisa, the world's leading Spanish-language broadcaster owned by the Azcárraga media dynasty.

PanAmSat posted revenues in 1991 of $32 million (£20.7 million); earnings before interest, taxes, depreciation and amortisation of about $20.8 million and pre-tax income of around $13.6 million. For 1992, the company expects these to rise to respectively $39 million, $25 million and $17.5 million. Waiting on the sidelines, unable to be tapped until the go-ahead could be given for the three new satellites, the company claims, are customer backlog commitments worth over $225 million. The $200 million Televisa has invested for a 50 per cent equity stake in the business guarantees it a share of the spoils, though not, the company says, until 1996.

To placate the US Federal Communications Commission, under whose authorisation PanAmSat was awarded its operating licence before the launch of its first satellite in 1988, PanAmSat Inc. will retain sole responsibility for the management and operation of the satellites.

Televisa's origins are in the 1930s. At the start of that decade Don Emilio Azcárraga Vidaurreta founded radio station XEW. Still owned 64 per cent by the Azcárraga family, the modern Televisa has evolved into a Latin multi-media empire with its chairman and



Anselmo of PanAmSat and Televisa's Azcárraga have consummated a long-standing relationship

Photo: AP/Wide World Photos

president Emilio Azcárraga Milmo ranked alongside the likes of media moguls such as Berlusconi, Murdoch and Marinho.

Televisa's core activities are in television, and on home soil include ownership of Canal 2 — Channel of the Stars — Mexico's flagship national channel, two channels with up to 69 per cent coverage (Canals 4 and 5), one specifically aimed at Mexico City (Canal 9) and the Cablevisión cable network.

The imminent government sell-off to the private sector of two national public channels (Canals 7 and 13) has whetted the appetite of aspiring competitors to Televisa. But, keeping one step ahead, the company has embarked on expansion abroad to cushion the impact of competition at home. So wide has Televisa cast its net of business interests that when it sold shares on the international money markets in late 1991, a total $836 million was raised.

In Chile, a 49 per cent stake in the private broadcaster Red Televisa Megavisión was acquired for around $7 million in 1991 and joint programme productions with the station have since been initiated to boost Megavisión's audience share.

Elsewhere in the Latin American region, agreement has been reached with ATC Canal 7 in Argentina which will see the company jointly produce programmes with the local broadcaster, transmit Televisa programming on its frequencies and share in ad revenues from the venture. And in Peru, last July, Televisa paid $7.7 million for 76 per cent of Compaña Peruana de Radio Difusion, owner of ten stations (including the national Canal 4) plus five affiliates.

Among Televisa's leading exports is the Eco news and entertainment channel, distributed via PAS-1. Launched in 1988 at an estimated cost of $250 million, the 24-hour channel is beamed to Latin America, Europe (where it is known as Galavision) and North Africa, claiming a potential audience of 350 million Spanish-speakers.

Galavision too is available to the US where it is carried on cable, mostly in areas with large Hispanic communities. Most operators opt to parcel the channel alongside the 13-station Spanish-language Univision network, 25 per cent-owned by Televisa. Available in 96 per cent of the US' 6.5 million Hispanic television households (either over-the-air or via cable), Univision posted revenues of $200 million in 1991 and is acknowledged to be North America's leading Spanish-language broadcaster.

Televisa had been cornered into divesting of an original stake in Univision in the mid-1980s after an FCC inquiry into foreign ownership of the network — an investigation which was to reveal an early association with Rene Anselmo. Televisa only resurfaced as an investor in Univision in the spring of 1992 after paying Hallmark Cards $500 million for the network.

Renowned worldwide for its buccaneering spirit in international satellite markets — the company proudly boasts the motto "Truth and technology will triumph over bullshit and bureaucracy" — PanAmSat's link-up with the Mexican company has "laid the groundwork" and allowed it to "solidify plans" for the launch of the three new satellites, says its president Fred Landman.

Due to be supplied by Hughes following an agreement signed in November 1991, these will extend coverage from over 70 countries in Latin America, the Caribbean and Europe (PAS-1) to the Asia Pacific in May 1994 (PAS-2), Atlantic Ocean in December 1994 (PAS-3) and Indian Ocean region in early 1995 (PAS-4), thereby reaching 99 per cent of the world's population.

In Landman's view, the new satellites are likely to have a "similar profile" to PAS-1, offering video and business services (such as data and telephony) in a 70/30 ratio. Moreover, the third PanAmSat will not — as expected — be used to replace PAS-1 since the launches are all part of an expansion process.

Of even more significance, however, will be the use of new compression technology by the operator. PanAmSat began the introduction of digital compression this April and demand for any resulting additional capacity is likely to be strong. Several broadcasters are already understood to have expressed interest and Barroso Azcárraga, company vice chairman, says Televisa itself is considering offering new services via PanAmSat, with pay-TV "one of the possibilities."

Most industry observers would be surprised if Televisa didn't exploit PanAmSat's capacity for its programming interests. Both parties stress there will

be no sweetheart deals on transponders and that Televisa, if it leases capacity, will pay the ratecard.

Complaints about the deal though were filed to the FCC, by Orion Satellite Corporation. The putative, US-based private satellite operator, licensed by the FCC in June 1991, effectively as a competitive rival to PanAmSat, alleged that under the agreement with Televisa, PanAmSat could not be expected to maintain control of its authorised satellite systems.

Orion submitted to the FCC the claim that "given his [Rene Anselmo's] personal and financial dealings with the Azcárraga family and given [Anselmo's] dependence on the $200 million in new financing through Televisa and Televisa's role as a major customer for the satellite system, it is simply inconceivable that Mr Anselmo will not defer to the Azcárraga interests and Televisa when he performs in the role as the 'managing general partner' and as a member of the 'Management Committee.'"

Orion's case was supported by the proceedings of the FCC's mid-1980s investigation into claims that Televisa had exercised undue influence over certain stations in the Univision network, of which PanAmSat's Anselmo was the president and major stockholder. An administrative law judge in 1986 upheld the claim, a finding that was challenged by Televisa.

Before the Commission had chance to assess the appeal though, the case was effectively settled by Televisa's agreement to divest of the stations — the Spanish International Communications Corporation (SICC), Bahia (San Francisco) and Seven Hills.

Taking the view however that limited partnerships typically make substantial equity contributions to such alliances and that for the same partners to be customers of the partnership isn't itself unusual — Orion itself is a joint venture between British Aerospace and Kingston Communications of the UK, Canada's Com Dev, General Dynamics, Matra, Nissho Iwai Corporation and Italy's Stet, some of which are expected to be customers for the system — the FCC thus found no reason to block the deal.

Barroso Azcárraga claims that for the time being no new channel launches are planned as there is still a need to first "get Univision and Galavision working." To get them working on a wider stage could conceivably be linked to PanAmSat's global plans.

PanAmSat

Reprinted from **Cable & Satellite Europe** *June 1993*

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MAY 1993 The Data and Telecommunications Management Magazine

Fred Landman
President and COO, PanAmSat

Will PanAmSat's 'Truth and Technology' Triumph?

As President and Chief Operating Officer of PanAmSat since its inception in 1984, Fred Landman has been at the forefront of breaking down regulatory barriers to establish the first private enterprise international satellite system separate from Intelsat. Following the success of the PAS-1 spacecraft in the Atlantic Ocean Region, he is now leading PanAmSat into the launch of three new high powered satellites to form a global system, with PAS-2 scheduled for service over the Pacific Ocean Region by mid-1994. He spoke with Liz Fell last month in Hong Kong after addressing the AIC Pan-Asia Cable and Satellite conference.

PanAmSat's challenge to Intelsat's monopoly has involved a struggle on a number of fronts. Many people were shocked years ago when your founder and Chairman, Rene Anselmo, referred to Intelsat as a 'monstrous worldwide telephone cartel.'

Landman: That was when he was being kind! The environment in the mid-80s when we started this venture was that Intelsat had convinced people that private international satellite systems would be the beginning of the end. But that tune is not singing very well now. We've been very successful competing in the Atlantic Ocean Region since 1988 and Intelsat, once they moved out of their paranoid stage, have continued to be successful.

AC: *The PanAmSat slogan: 'Truth and technology will triumph over bullshit and bureaucracy' must have helped get your message across?*

Landman: A lot of people have commented on that and our use of the dog Spot. Customers, not Intelsat signatories, but real customers have said that we are successful because Intelsat was so bad in the markets we were going after, they just weren't meeting market demand. If they were, we would have been out of business a long time ago.

AC: *So how does your approach differ from Intelsat's?*

Landman: The difference is our market focus and our customers. Intelsat have exclusive access to their system via signatories so their focus is on signatory requirements. Intelsat has no customers, it has users. We focus directly on customers, particularly broadcast and private corporate network customers. So we are competing with Intelsat from a satellite perspective, and with their PTT signatories from an operating customer perspective.

AC: *Was it a tough struggle to get satellite landing rights in each country?*

Landman: Yes, when we started, we were only authorised by Intelsat to provide service between the US and Peru. It took about three years to take that from one country to 70 countries, and from one customer to filling up the satellite with over 300 customers now.

AC: *As well as having to consult with Intelsat before starting a service, didn't the US Government impose restrictions under its separate satellite policy?*

Landman: When that whole policy was developed, the US Government bought into Intelsat's act. As our Chairman put it: 'The Mother Theresa of satellite services, Intelsat, would be so harmed by private satellite systems.' For God's sakes. Intelsat have 16 satellites, a multi-billion dollar organisation, and we had this scrappy start-up. We needed to be protected from them, not them from us!

AC: *But aren't you still subject to restrictions that protect Intelsat, such as limits on traffic interconnected to the public switched network?*

Landman: That sacrosanct policy has been eroding. The US Government at the end of 1991 said it was going to lift those restrictions and Intelsat has adopted that policy. The threshold has been lifted to 1,250 64 kilobit-equivalent circuits per satellite. By January 1997, there will be no prohibition on the type of traffic private satellite systems can carry.

AC: *As part of your struggle with Intelsat, you have also engaged in expensive legal battles. Has your anti-trust suit against Comsat [Intelsat's US signatory] finished?*

Landman: That's still going. The fat lady has not sung. It's a slow process and a complicated issue.

AC: *These cases must cost a lot of money?*

Landman: We're not talking about money. We're talking about right or wrong.

AC: *But surely you wouldn't fight the case if there weren't some revenue benefits?*

Landman: No. There was something very fundamental here. We had an organisation above the law that was controlling prices and trying to put competitors out of business. As a regular corporation they would never ever get away with that. The issue was why was Comsat above the law? What British Airways did to Virgin is tame compared to what they did to us. That's the principle we're going after. It's not about revenues.

AC: *Much of your early success has been in Latin America. How did Intelsat respond?*

Landman: Their response, and I'm not saying they are still doing this today, but in the mid-1980s when we started, the first thing they did was to try to discredit us. When that

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didn't work, they started selling capacity at below cost to keep us out. There was one foray when they provided capacity at a fraction of what they had been charging. This cost them, by our estimation, about $US80 million. Basically they used every dirty trick in the book to keep us out. And when it was all over, we were still getting customers.

AC: *As a result of this competition, do you think Intelsat has lifted its game?*
Landman: I don't think the jury is in yet. There's been a lot of talk about becoming competitive and paying attention to ignored markets. But don't forget that Intelsat has been dominated by the North Atlantic alliance — the US, UK, France and Germany — that's where the big ownership is. I think they recognise now that they can't ignore the rest of the world — Latin America, the Pacific Rim, Africa. We provide a lot of service in Latin America, so they've got to pay attention to that; AsiaSat pops up here in the Pacific and is tremendously successful, so they've got to pay attention to that; Astra pops up over Europe and they're very successful. What have these guys been doing? Sleeping at the switch for 25 years?

AC: *Your early opponents argued that you would skim off the cream and ignore thin-route markets. How do you respond to that?*
Landman: That was always one of the arguments. But how much thinner can you get than Latin America? By bringing the right satellite technology to that region, we have developed those thin-routes and provided real benefits including rural telephony programs and educational networks. We'll provide the same benefits in this part of the world, in Africa, the Near East, the Far East and the CIS. We don't just concentrate on the high-density North Atlantic routes where Intelsat have always taken care of their US signatory, their UK signatory and so on.

AC: *What benefits will you offer the Asia Pacific region when PAS-2 is launched next year?*
Landman: We will put high quality, high powered, focused coverage within this region. I know a lot of new domestic satellites are planned, but not every country is putting one up today, though they may in the future. We can provide coverage for countries to develop their infrastructure for telephony, business communications, trunking, thin-route, broadcasting or whatever. We've done this throughout Latin America.

AC: *What will you offer in the way of business communications?*
Landman: We can develop sophisticated corporate communications networks. Sometimes we provide the full service to the customer including satellite, the earth stations, management and maintenance of the network. At other times, we provide bulk bandwidth and power to carriers, especially emerging second, third, fourth or fifth carriers, to develop on a domestic, regional or even international basis. What I've seen happen is that countries, frustrated by their monopoly carrier, licence a specialised satellite service carrier to open things up. You're seeing this in Europe, in Latin America and in Asia. It stimulates the market, prices come down, innovative services are introduced, and the carrier becomes responsive to the market. This has a rippling effect and businesses gain better and more affordable communications.

AC: *Is it correct to say that, partly because of policy restrictions, television is your major revenue source?*
Landman: Yes, about 70%.

AC: *How will this be affected by digital compression which requires much less capacity?*
Landman: We started a digital compression system recently. We went to some analogue customers and said: 'We'll reduce your monthly bill significantly by giving you a digital channel, do you want to give back some capacity?' And they said: 'If you're going to bring the cost down, I want more than one channel. I want four channels actually, because I can reformat one, do an NTSC and PAL version and also a black-out channel version. So you can have only a little bit of that capacity back.' Digital compression will be a market stimulant rather than a depressant. It will open up opportunities for big programmers to repackage and send programs out differently and for small programmers to enter the marketplace because of the lower price threshold. We use digital compression now to bring Greek programming to North America because the price threshold came down.

"We provide a lot of service in Latin America, so they've got to pay attention to that; AsiaSat pops up here in the Pacific and is tremendously successful, so they've got to pay attention to that; Astra pops up over Europe and they're very successful. What have these guys been doing? Sleeping at the switch for 25 years?"

AC: *Is the lack of digital video standards a worry?*
Landman: We all want to see a universal standard. Anything we do in compression has always had a migration scheme to take it to that MPEG standard. My best guess is that in the first part of 1994 you'll see that.

AC: *Anselmo has said he would like to aggregate all TV programmers on one spacecraft for receipt by one dish. Is this 'hot bird' concept one of your aims?*
Landman: The approach taken on our first satellite, and we have no secrets about doing this on the others, is to create the 'hot bird,' which is an unfortunate name. But our approach to the hot bird is a little bit different from some others. In the Atlantic Region, and in the western hemisphere in particular, by adopting a policy of open access and direct access, we have programmers from virtually every country in Central, South and North America all accessing the same satellite, so you have that hot bird concept.

But it's not a matter of programs just funnelling southward, it's programs going north too. What I see here in the Pacific is that people want to communicate within the region from Australia to Asia, from Asia to Australia, from Asia to North America and back. So you could have this confluence of interests on one satellite communicating in many directions. That's what we want on the PanAmSat satellite, a real freeing up of the flow of information rather than a constriction, which is what I believe you have with our competitors.

AC: *Financing the three new satellites proved another major challenge. Is that correct?*
Landman: While our business was profitable from 1990 on, we didn't have enough money to pursue three satellites on an accelerated basis. A decision was made to look for equity investors and that took us to Japan, Europe and many other places. We spent about 12-18 months looking for equity. But it takes a very long view, a bit of a leap of faith, because the satellite business is a risky business.

AC: *And finally you turned to Televisa from Mexico, the company that had a stake in PanAmSat when it first started?*
Landman: Televisa have a very long view. They are a global media player and a huge producer of programming, which they historically have distributed out of Mexico into North America, Asia, Latin America, Europe, Asia and Russia.

AC: *What share do they have?*
Landman: All their money went towards building new assets. There was no cash-out by existing shareholders. They have a 50% interest and as part of that, they have a minority representation on the board. The day-to-day operation of the company has stayed with Anselmo and his interests, and it will continue that way.

AC: *Did you have problems securing FCC approval on the recent equity investment given previous controversies over Televisa's foreign ownership and control?*
Landman: We went to the FCC last December and they gave us an accelerated decision which was very positive. Some competitors tried a bit of a mud-slinging campaign in that regard, but the FCC in its decision made it very clear that there was no issue of foreign ownership and control on this venture or on previous ventures with Anselmo and Televisa. It was a fairly strong statement. We got

our approval on December 31.

AC: *Why did PanAmSat design PAS-2 with high power beams across Australia?*
Landman: I can't say exactly what is going to happen in this region, but there is about to be an explosion in communications within the region, north-south, and across the region, east-west. We design each satellite for each ocean region, in contrast to Intelsat where every satellite has been a transplant of another one, so when we designed the Pacific coverage, we decided to go for maximum connectivity. That means we'll have a lot of flexibility to meet the market demand and for the market to do virtually anything it wants.

AC: *Can you provide customers with connectivity between Australia and Hong Kong, for instance?*
Landman: If you want to communicate between Hong Kong and Australia, we can do that. If you want to uplink in C-Band or Ku-Band or come down in either band, there are 16 possibilities. If you want to drop down in the US at the same time, we can do that too. And if you want to go up in C-Band and come down in Ku-Band in China, we can do that too.

AC: *What is the size of uplink antenna in Australia?*
Landman: In Ku-Band, it would probably be 1.2-1.8 metres, depending on the type of service, and at C-Band probably 2-2.4 metres, again depending on the type of service. You will receive on antennas that are never more than 2 metres. And those antennas are for your roof, not for some distant gateway where you have to pay for the terrestrial infrastructure to bring the information to your office, which introduces added cost, makes it less dynamic and, of course, you do suffer some unreliability.

AC: *If I understand Australia's regulatory situation correctly, international customers with rooftop antennas can lease capacity directly from PanAmSat, provided they are interconnected to the public switched network at one end only.*
Landman: I'm glad you understand it!

AC: *I'm not that certain! But domestically, it appears that customers, including television, can only lease PanAmSat capacity through one of the carriers to protect the duopoly. Is that your understanding?*
Landman: We've hit regulatory situations as good, better and a lot worse than Australia. Any country has its own unique set of rules that are generally in transition. I firmly believe that monopolies aren't in anyone's interest, whether it's the country's interest or business interests. They're not even in the monopoly's own interest, if we really had a little foresight and wisdom.

AC: *What about a duopoly?*
Landman: The same thing. Duopoly is two monopolies working in partnership. I used to love the duopoly in the UK with Mercury and BT. All they had to do was watch the other guy and keep their prices at the same level or slightly lower. We saw no innovation and very little market stimulation.

AC: *In Australia, have potential customers complained about going through the carriers who presumably will mark up the price of PanAmSat capacity?*
Landman: You can ask that question about any country. I think it sticks in most people's throats.

AC: *Have potential Australian customers complained?*
Landman: We haven't addressed that issue, but it's a concern everywhere. We've seen mark-ups of seven per cent and seven hundred per cent. I don't like mark-ups.

AC: *Isn't direct customer access one of PanAmSat's main selling points in relation to Intelsat?*
Landman: There are a couple of issues here. One is when we have to use a carrier's ground facilities, which is not the situation in Australia. Going through a carrier for access to PanAmSat is another issue. If the carrier allows for a modest administrative mark-up reflected in the amount of effort, perhaps licking a stamp, that's one thing. But a gouging mark-up is something we have fought in some parts of the world and if that's the situation in Australia, we'd fight it there. I think it's hard to justify exorbitant mark-ups when there is absolutely no value added.

AC: *In the domestic market, will PanAmSat be competitive with Optus satellites?*
Landman: Our coverage of Australia will be comparable to Optus.

AC: *Are you promising lower prices?*
Landman: Our overall offering is better, and in a competitive situation I think we've been able to come in at a better price than anyone else.

AC: *Have you received strong interest from Australian customers and if so, from whom?*
Landman: I can answer the first part of the question, which is 'Yes.' I can't answer the second part.

AC: *The Australian media has published several items about both PanAmSat and Intelsat delivering Pay TV direct-to-homes from the US. Are you planning that?*
Landman: We certainly have the technical capability to do that, but as I understand the law right now, the person doing that would be subject to a healthy fine, which is something like one or two million dollars.

AC: *Even if I subscribed from the US using a credit card?*
Landman: I've read the regulations, and it's a bit unclear.

AC: *You mentioned to me earlier that the media seem to view PanAmSat as orchestrating a bypass of the current broadcasting structure.*
Landman: We wouldn't orchestrate a bypass of regulations. We are relatively passive in that role. If a customer wanted to try and do that, then we would work with them, and with the regulations, to see if it could be done. But it's not as if we're out there saying: 'Here's a way to break these regulations and do something illegal.'

AC: *Australia is really a tiny market when you look at the coverage of your new Pacific and Indian Ocean spacecraft. Have you, for instance, received strong interest from the Japanese market?*
Landman: And your next question will be who have we been talking to! What I can say, whether we're talking about Australia, Japan, Hong Kong, Taiwan, New Zealand, or the US Trust Territories, is that the market is not adequately served. There is a pent-up demand for something that will allow people to communicate in new and different ways.

AC: *In the Pacific, PanAmSat is planning to park PAS-2 very close to an orbital slot 'reserved' for Papua New Guinea's Pacstar, which has a special 'grandfathered' status under ITU Radio Regulations. Why did you go for that slot?*
Landman: We have two slots, one very close to Papua New Guinea's and one that has some distance. Whenever Papua New Guinea decides to launch their own dedicated satellite, I think there is area in that orbital position that will allow them to do what they want, and we'll be happy to work with them at that point. In the interim, they may want to use our satellites.

AC: *So you intend to use the slot near PNG?*
Landman: Sure.

AC: *I know there is competition for scarce orbital slots in this region and Pacstar has been a paper proposal since about 1984, but does this mean the first-up can just occupy any slot?*
Landman: People are going to have to look into this sort of warehousing of orbital slots. The US will not grant you slots and let them lay fallow. They review each year, you can never have more than two slots empty at any given time, and if they don't see you doing something, they'll take them back. But there are some countries that have been renewing their orbital filings for years. They authorise three or four slots to an operator who does nothing for years on a diligent basis to fill up the third or fourth.

There is going to have to be an overhaul of the whole process, because there are people willing to put up real satellites to provide real services to real customers and satisfy a whole spectrum of needs, and there are others just hoarding the slots like pirates of outer space.

AC: *Are you pointing to Tonga there?*
Landman: Among others. You have Intelsat just parking nearly-dead or last-breath satel-

lites in slots and saying: 'Look, we're really using this.' In October 1991 we were Advance Published with the IFRB [International Frequency Registration Board] for slots at 68 and 72 degrees East Longitude in the Indian Ocean region. Then a few weeks ago, Intelsat filed with the IFRB for 69 degrees East. How the hell do they think they're going to operate one degree away from us?

AC: *There are an increasing number of disputes over the key Fixed Satellite Service slots. Is it a matter of getting there first?*

Landman: I'm the last one to try to deny access to space. We are pro-competition. Intelsat has kept us sharp, and others will keep us sharper. But it is a big mistake to sit on and hoard a scarce resource. In the case of PNG, I think they're approaching their 8th anniversary. There will be a way to accommodate Pacstar somewhere nearby when and if they want to operate a satellite system.

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PanAmSat

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Technology

FUJI LEASES PANAMSAT FOR NEWSGATHERING

Move will allow both parties to gain a more global foothold

By Peter Lambert

Alpha Lyracom Vice President Jack Albert and Fuji TV's Denjiro Nakaide

The competition among Japanese and other television networks to provide global news coverage of the world heated up a notch last Wednesday, April 1, when Fuji TV Japan lit up a full-time transponder aboard Alpha Lyracom's Pan American Satellite, PAS-1, over the Atlantic Ocean.

The 36 MHz North American transponder will allow Fuji TV to deliver video from Europe to Japan using only two satellites (PAS-1 and an Intelsat bird over the Pacific) and only one down- and uplink (between Fuji's bureaus in either New York or Los Angeles).

In addition to leasing the last available full-time video capacity available on the satellite, PanAmSat is providing end-to-end transmission coordination and video monitoring through its Homestead, Fla., teleport, into which Alpha Lyracom has put more than $4 million since late 1990. Terms of the contract were not divulged.

So serious is Fuji about covering Europe that, in a two-day period in late March, PanAmSat took 900 orders for video feeds uplinked from mobile and fixed sites in Europe. For now, the PAS-1 capacity gives Fuji a path out of Europe. Via two transponders on PAS-1, NHK (Japan Broadcasting Co.) backhauls news out of Europe and distributes programing to Japanese viewers there.

''The whole world is a melting pot, not just the United States,'' said Jack Albert, vice president of broadcast services for Alpha Lyracom, noting that CNN, the BBC and other programers already distribute programing worldwide and that PAS-1 now delivers six hours of Yugoslavian programing to viewers in North America. Alpha Lyracom expects that global emigration, exemplified by the fact that Brazil contains the largest Japanese population outside Japan, will continue to drive demand for global program distribution, as well as global news coverage.

The trans-Atlantic capacity completes the Europe-to-Japan link for Fuji and NHK, which, along with Tokyo Broadcasting System, last year took full-time Intelsat Pacific Ocean Region leases following the dissolution of JISO, a consortium lease by Japanese broadcasters including Nippon Television and TV Asahi.

In a related development, Salt Lake City–based Keystone Communications last week launched its K2 Skylink service over the Pacific Ocean. Created and operated in conjunction with KDD Overseas Communications of Japan (a subsidiary of the Japanese telephone company), K2 Skylink offers end-to-end transmission from the U.S. to Tokyo and other Pacific Rim destinations.

For Alpha Lyracom, the deal laid another brick in its plans to interconnect the globe, plans that will include the addition of satellites over the Pacific and Indian oceans. The move brings its European news coverage into the realm of instantaneous, global coverage. Some, if not all, of the PAS-1 contracts include options on PAS-2 (to go into service over the Pacific in March 1994), PAS-3 (over the Atlantic by August 1994) and PAS-4 (over the Indian Ocean in early 1995). The Indian Ocean bird would provide a direct link from Europe to Japan with no downlink between, he said. ■

Multichannel News

March 22, 1993

CHASING WINDMILLS NO MORE

Anselmo Moves Into The Global Satellite Big Time

By JANET STILSON

GREENWICH, Conn. — Tension is building at the offices of the Pan American Satellite Co. Pressure is no stranger to Rene Anselmo, the PanAmSat chairman who whipped the Intelsat satellite cooperative at its monopolistic game years ago.

Anselmo has put millions of dollars of his own money at stake to launch something the world had never seen before: a private intercontinental satellite transmission business.

Referred to by some in the industry as Don Quixote, tilting at Space-Age windmills, Anselmo is now transforming PanAmSat from a one-bird show covering Latin America and Europe into a truly global enterprise.

A new satellite takes on a Pacific Rim footprint in May 1994, followed by another serving the Atlantic Ocean region around December 1994. Yet another, covering the Indian Ocean, lifts off in the second quarter of 1995. All told, they're a $700 million gamble.

"The pressure is building up daily, getting organized, handling sales," says Anselmo. Construction workers are busy doubling his already substantial office space here in tony Greenwich, and the search is on for a teleport location in the San Francisco area.

ANSELMO

Meanwhile, 27 companies have queued up to take transponder space on the Latin American business he originally built up — still the only alternative to Intelsat for companies looking for transmission between North and South America.

Some relief will come via digital compression, which will allow five of the TV channels a berth in April and September. "Hopefully, that will ease things until the next satellite goes up," Anselmo says.

That success and growth, however, have not changed Anselmo's scrappy, unorthodox approach to business, which is summed up in a lapel pin he created that features a character invented years ago, "My Dog Spot."

Anselmo has used a series of fictional characters over the years to get his point across to a few key people in Washington, including someone who, like him, shared a onetime penchant for the acting profession.

"*Muy excelente* Mr. President Reagan:" he wrote in November 1981. "My name is Pedro Gonzalez de la Maria y Gonzalez. I am the *comandante* of the Guardia Civil in Antofagasta, Chile, where we have in custody an American citizen who claims to be Don Bigote de la Mancha. This is not so. His name we think to be Anselmo."

Buried in the lengthy letters were his arguments for forcing the U.S. and other governments around the world to break Intelsat's lockhold on the international satellite business.

"For the most part, they were laughed at," remembers Jack Loftus, currently vice president of communications at Nielsen Media Research and a veteran TV news journalist and former member of the federal government's Office of Telecommunications Policy. "I thought the approach detracted from a very good point that he was trying to make and hurt his credibility."

But former Federal Communications Commission Chairman Mark Fowler, now president and chief executive of Bell Atlantic Personal Communications Inc., counters that view.

"They [the letters] were effective because they were amusing. But they had a point: 'I'm the little guy, I'm being stepped on and I'm for competition,'" Fowler says. "In the Reagan administration, those were the magic words."

As a result, Reagan issued a presidential determination in 1984 allowing competition to Intelsat.

For Anselmo, that was just one of the seemingly insurmountable hurdles that he had to overcome.

"The Argentina channel was the first to sign for a transponder, and it took them three years to get through the regulatory maze so they could use it," he recalls. "But once the legal barriers started to break, it just cascaded. It was surprising how quickly the whole monopoly scheme, not only in Latin America, but also in Europe, just broke."

In addition to all the legal barriers, there were recurring money problems. Unable to get external financing to launch his first satellite, Anselmo gambled some $80 million of his own money, the bitter fruits of what had been for him a personal debacle: the court-ordered break-up of the Spanish-language network SIN and a group of TV stations that he headed for 25 years.

The properties were 20 percent owned by the mighty Mexican media conglomerate Televisa S.A., helmed by the family of Emilio Azcarraga. And it was the question of control by that foreign investor that forced the sales. "I was very hurt," Anselmo says. "My name has been dragged through the mud, and so has Azcarraga's."

But it was Azcarraga who came to Anselmo's rescue late last year when PanAmSat was down to the wire again, searching for funding to launch the new satellites.

When he called Azcarraga late last October, "I hadn't spoken to him in five years," Anselmo says. "It took about five minutes to explain it to him, and he agreed to invest $200 million without seeing a piece of paper or projection."

That 50 percent investment may have provided Anselmo with a financial security blanket for the new launches — as have the $40 million in gross income and $18 million in profits PanAmSat posted last year.

However, business is likely to be tougher for the new PanAmSat birds aimed at the Pacific Rim and Europe, regions where competition from other carriers is much more intense than it has been in Latin America.

"To the extent that PanAmSat has greater aspirations to provide localized coverage, they're subjecting themselves to competition from local carriers," says Andrew Brilliant, senior vice president and general manager of ESPN International.

Nor is Anselmo finished with Intelsat. In particular, he is attempting to have Intelsat's treaty abrogated — a treaty that gives the cooperative diplomatic immunity protection against antitrust activity.

That quest has not endeared him to some. A PanAmSat attorney, Henry Goldberg, of Goldberg Godles Wiener & Wright, says the company was simply continuing its fight against the Intelsat treaty when it filed a protest against a petition by Reuters Television International's Brightstar to the FCC seeking permission to directly uplink its signal to an Intelsat transponder, rather than going through Intelsat's U.S. signatory, COMSAT.

But Brightstar sees things differently. Bill Page, vice president of Brightstar for Reuters Television International, praises Anselmo generously for changing the international satellite business.

But Anselmo "insists that the playing field be level when it benefits him, but when it benefits someone else, he doesn't want that way," Page says.

Rough-and-tough tactics have not endeared him to some, says Peter Marshall, president of Keystone Communications L.P. and president of the Society of Satellite Professionals International. "But I think he's done it the only way he can. ... It's still a long-term process to get an international satellite company up and running."

At the age of 67, Anselmo may just be on the first rung.■

PanAmSat

Reprinted with permission, *Multichannel News*, March 22, 1993

High Flier

The sky's the limit for Rene Anselmo and his telecommunications company.

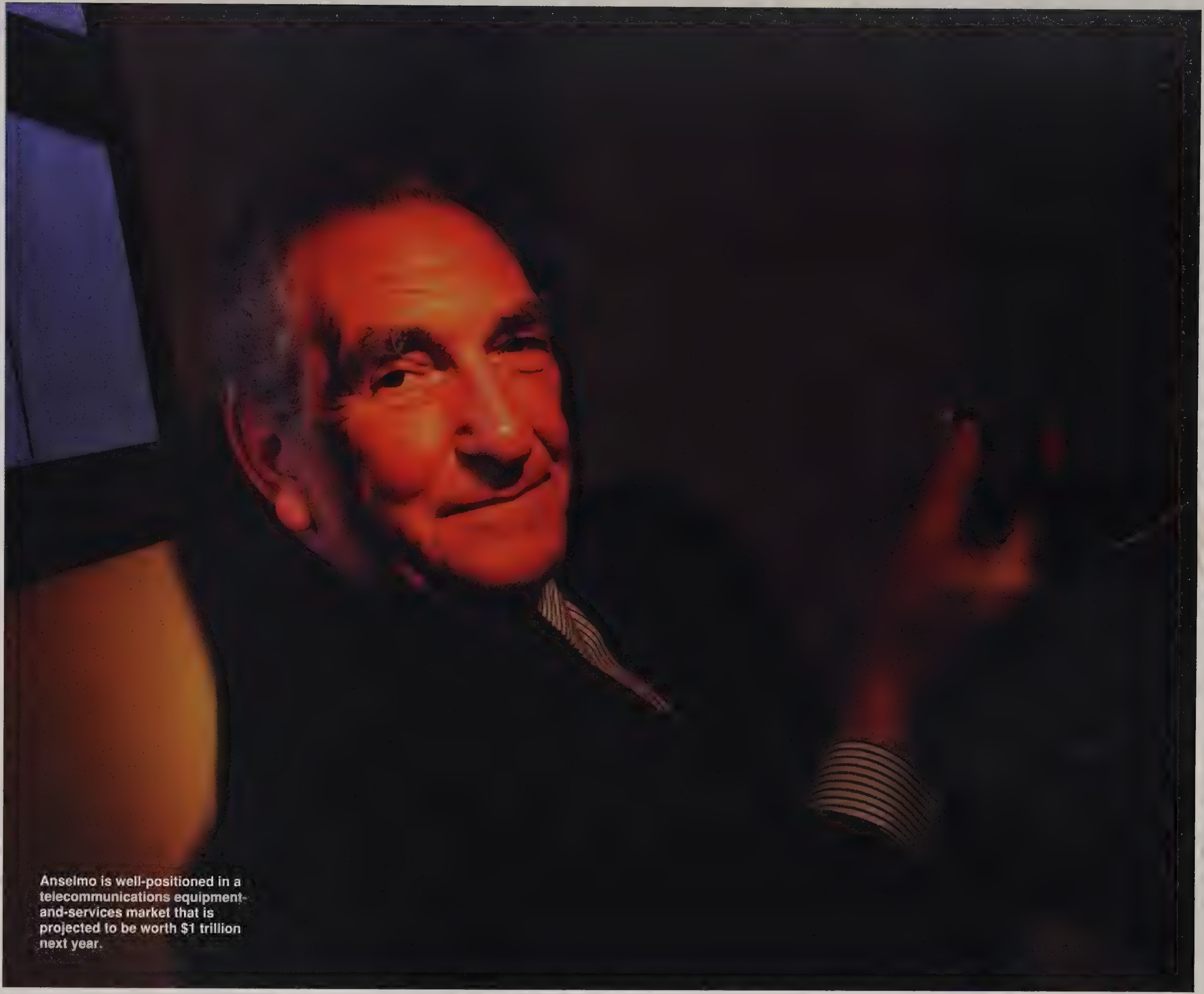
Look! Up in the sky! It's a bird! It's a plane! It's . . . well, it's a bird, as artificial satellites are affectionately called. And this particular bird is a rare duck indeed: The first privately owned, international telecommunications satellite in orbit. Not surprisingly, the guy who sent it flying is a bit of a strange bird himself.

This is Rene Anselmo, chairperson of Alpha Lyracom Space Communications, operating under the name Pan American Satellite — no relation to the airline. Prior to this particular first, he'd distributed American TV shows in Mexico, founded a theater company that evolved into Second City, and helped create television's Spanish International Network (SIN), now Univision. And despite having cleared a cool $100 million when he sold his SIN shares five years ago, he is far less Michael Douglas as Gordon Gekko than James Whitmore as Harry Truman.

In his plush office on the second floor of a modern, red-brick low-rise in Greenwich, Connecticut, the crusty, 65-year-old Anselmo is dressed comfortably in an open-collared shirt and a pullover sweater. Except for the halo of cigarette smoke from the Winstons he chain-smokes, he looks more ready for his grandkids than for multimillion dollar business deals.

By Frank Lovece

Photograph by David Barry



Anselmo is well-positioned in a telecommunications equipment-and-services market that is projected to be worth $1 trillion next year.

"I don't consider myself a businessman," Anselmo says "I guess I'm just your classic, basic promoter-entrepreneur."

That he is, with a high-tech twist. Until Anselmo came along, U.S. TV networks, news organizations, and banks needing to transmit voice, data, or video internationally had virtually no other avenue but Intelsat, a 15-satellite, 120-nation co-operative. Each member-nation has a signatory organization, generally the government PTT (post/telephone/telegraph) monopoly. In the United States, it's the Communications Satellite Corp., a publicly traded company created by an act of Congress in 1962 just for this. Known as Comsat, it enjoys a legal monopoly. And just like nature feels about vacuums, Rene Anselmo abhors monopolies.

Anselmo is fighting like a bulldog for access to the international telephone systems.

Spurred by the deregulatory climate of the 1980s, and flush from the sale of SIN, Anselmo put up most of the $85 million needed to buy and launch his RCA-made satellite, dubbed PAS-1. It lifted off June 15, 1988 form Kourou, French Guiana, via Arianespace, the European private-rocket company-with Anselmo having no assured customers, and only about $40 million in insurance if the darned thing blew up.

Yet his pie in the sky paid off: Among other things, Pan American Satellite beamed this year's Academy Awards ceremony overseas, live; handles a significant share of transatlantic news transmissions by ABC, CBS, CNN, and the BBC; and channels financial data for Volvo, Citibank Corp. Latino, and others. Financial observers say Anselmo's privately held firm should surpass its projected 1991 revenue of $25 million. The company is now well positioned in a telecommunication equipment-and-services market that the U.S. Department of Commerce predicts will be worth $1 *trillion* next year.

Yet even with that big a market, why start such a risky, untested venture at age 61, after having cashed in on a fortune? "Well, I gotta do *something*," Anselmo protests. "Satellites and broadcasting are so integrally related, and with SIN I was an early user of satellites, so it was just a natural adjunct," he says, shrugging. "And the reason nobody ever did it before is nobody was ever *allowed* to do it."

This is so. It wasn't until 1984 that a Rockville, Maryland firm called Orion Network Systems began nudging the government for permission to launch a private, international telecommunications satellite (private domestic satellites are a separate and fairly common thing). Thusly nudged, President Ronald Reagan signed a 1984 document called Presidential Determination Act #85-2, allowing private satellites to compete in the Intelsat market.

"I immediately jumped in," Anselmo recalls, "because I knew all the satellite services we weren't getting — and the costs for what *was* available were exorbitant because it was a monopoly market. The whole system had to be changed," he says, "and it was a nice, personally challenging thing to do."

Reynold Vincent Anselmo has had a lifetime of nice, personally challenging things to do. Born in Medford, Massachusetts, he joined the Marine Corps at 16 and spent three-and-a-half years as a World War II tail-gunner, completing 37 combat missions in the South Pacific. He came home to earn a theater and literature degree from the University of Chicago in 1951, and to found a campus theater group called Tonight at 8:30 — some of the core members later went on to create the famous troupe, Second City.

"Rene and I lived side by side in basement apartments," recalls acting teacher Paul Sills, who co-founded Second City and the two predecessor groups. "He was an interesting man, full of details. Always wore white shoes and carried an umbrella; had some of the Harvard Yard about him. What I learned from Rene was that you could actually start a theater — that you didn't need anybody's permission."

By now it was the beat 1950s, the era of Jack Kerouac's *On the Road.* Anselmo drifted to Mexico. He liked it enough that after a brief return to the States — where he was a guest director at the

Pasadena Playhouse, and met Mary Morton, his future wife — he returned to Mexico to live.

After a $25-a-week stint dramatizing *Time* magazine stories for the U.S. government's *Voice of America* radio broadcasts, Anselmo hooked up with a radio-show distributor named Paul Talbot, and began a small syndication company. When television developed, Talbot began buying syndication rights to American shows and had them dubbed in Spanish; Anselmo would lease them to Mexican TV stations. Some years later, Emilio Azcarraga, founder of the Mexican TV network Televisa, S.A., hired Anselmo to start up a division to export their programs to other Spanish-speaking countries.

> *Until Anselmo came along, TV networks, news organizations, and banks needing to transmit voice, data, or video internationally had no other avenue but Intelsat.*

In 1961, Anselmo — still a Televisa employee — and other investors began buying UHF TV stations in the United States, and pioneered Spanish broadcasting here. Over the course of 25 years, that core of stations grew into SIN/Univision, with 400 TV stations and cable affiliates. Yet since it was 20 percent owned by Azcarraga, Anselmo — a U.S. native who ran it out of New York City — had to divest himself because of a complicated federal issue over whether the network was foreign-owned — which was strictly forbidden.

The incident, to Anselmo, is an example of bureaucracy and authority gone awry. Scrappy as ever, he sees the same red-tape morass in Intelsat and Comsat. "It's like Communism and Socialism in Eastern Europe," he grumbles. "You wonder how the people over there put up with *that* for 75 years."

He's probably overstating the case — Intelsat has done much demonstrable good, making telecommunication available to countries that otherwise couldn't afford it. Yet Anselmo's correct that as in any monopoly situation, you can't go across the street if you don't like the price or service.

Comsat charges a reported flat rate of $2,637 an hour; Pan American Satellite, between $1,000 and $2,400 an hour, depending on usage based on volume per year, with most customers paying, says Anselmo, about $1,300. Even with a few hundred added at each end for earthstation fees (included in the Comsat rate), Pan American Satellite is a bargain. And to the joy of news organizations with breaking reports, Anselmo always has a satellite transponder or two set aside for last-minute spot bookings.

He's also fighting like a bulldog for access to the international telephone systems. Known as "public switched networks" (PSNs), these phone lines are used to transmit almost everything, from voice to data. The right to compete with Intelsat in this market would be a boon to Anselmo. However, such access was specifically excluded from the Presidential Determination Act that allowed the formation of Pan American Satellite in the first place.

> *Financial observers say Anselmo's firm should surpass its projected 1991 revenue of $25 million.*

Not one to lie down in the face of a monopoly, Anselmo has embarked on an ambitious, yet seemingly quixotic campaign to remedy the situation. Tired of writing lengthy missives to politicians and bureaucrats, which he feared were not being read, Anselmo took out a paid advertisement in *The New York Times*, to address the situation. But this was no staid political ad. In the form of a 17-frame comic strip, it featured Anselmo and his dog taking on well-heeled lobbyists (in football regalia), and in one panel depicts Anselmo as a Kurdish refugee. The cartoon culminates with Anselmo making a plea for President Bush to "strike a blow for global telecommunications liberalization. Lift the PSN restriction now."

Most of the U.S. telecommunications industry wants Anselmo and others to have the access to PSNs: Literally dozens of telecommunications users, satellite makers, and others filed comments on his behalf with the Federal Communications Commission last February.

That prompted Intelsat to recommend Anselmo be given 100 PSN circuits to use — an amount Anselmo says is "like having a billion dollars in your pockets and saying, 'Here's a penny.' " He exaggerates, yet according to spokespersons at both Intelsat and the F.C.C., 100 circuits is, indeed, a pittance.

For somebody in his sixties, who took a windfall and bet it on an inside straight, money isn't the issue.

But the game seems destined to change. Orion Network Systems Inc. is close to launching its two satellites, and Anselmo is negotiating to order three. And chances are, every bird will be booked: The last few years have seen explosive growth in satellite news services, fax transmissions, video teleconferencing, private telephone networks, and bank/credit data communication — the latter of which increased over 40-fold from 1970 to 1985, and could soon account for 40 percent of all telecommunications traffic.

At present, however, it's still a poker game with an enormous ante. Anselmo's first satellite cost a cut-rate $47 million; slightly more advanced ones are double that now. "And launch costs have quadrupled," Anselmo says. "You have an $80 million satellite, an $80 million launch, another $32 million for insurance — and then it's $10 million a year [operating and maintenance costs] for 13 years," the average life of a communications satellite. Now add in the cost of a satellite earthstation teleport in Homestead, Florida, and 40 or so employees.

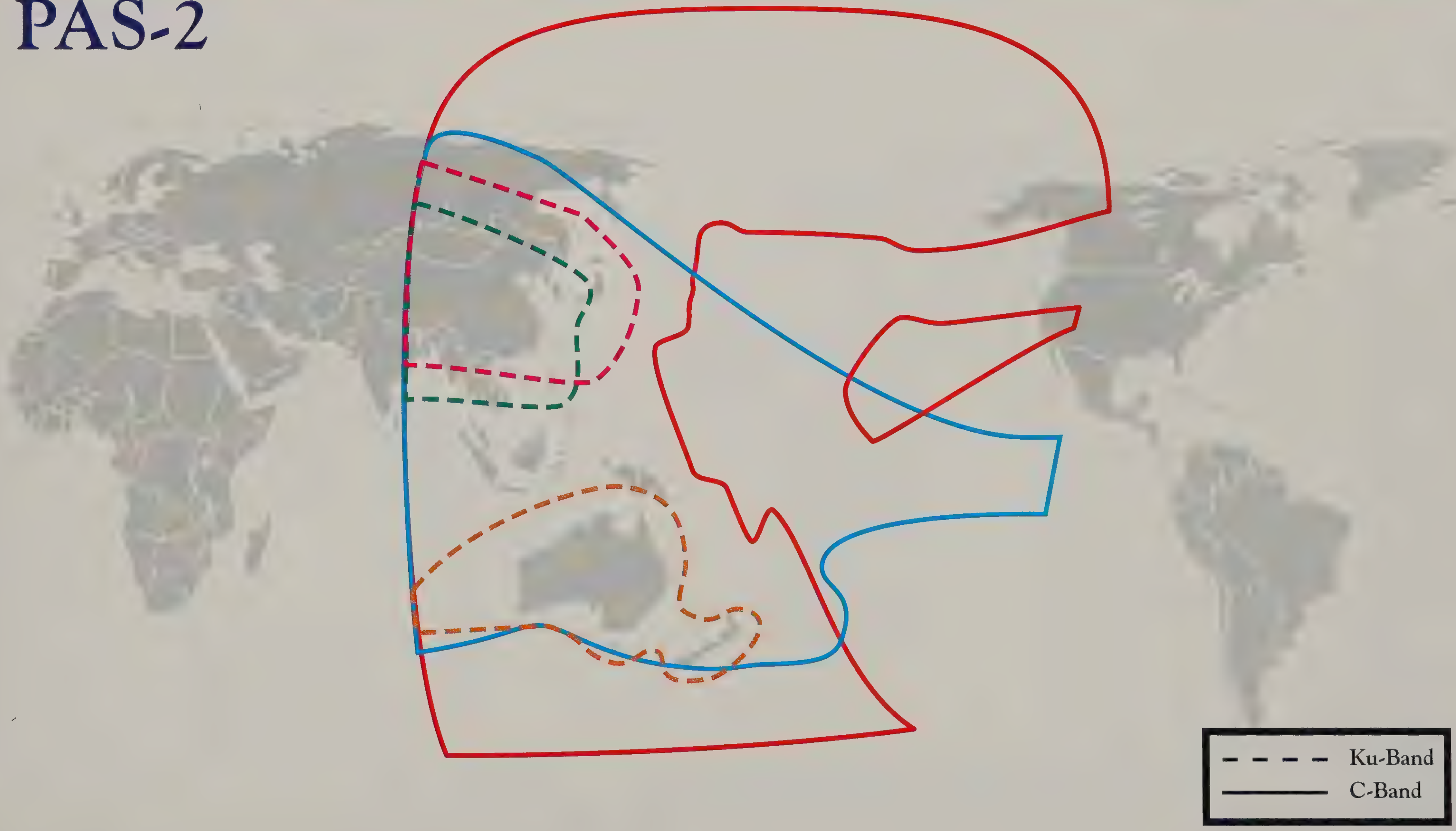
The crusty 65-year-old Anselmo looks more ready for his grandkids than for multimillion dollar business deals.

Each bird Anselmo puts up will top out, he figures, at $40 million in revenue a year. "You're making money there," Anselmo says. "But owning satellites is not a good business in itself. You have to develop services. Let's say you're an airline. You want to put in VSATs, these dishes for data, and hook up travel agencies all over the place, so they can get into the computer via satellite. Now the airline doesn't want to operate that. So you provide that service: You install the stations, take care of them, provide the satellite transmission — there's money *there.*"

"You don't do these things to make money," Anselmo claims. "You do and you don't. I'm doing it to give me something to do, and I just love breaking up this whole monopolistic system — all these state-owned telecommunications systems that don't provide good service in their countries and don't let anyone else provide it. I'd just *love* to break up that system," he says, tilting his lance. □

Frank Lovece, a free-lance writer based in New York City, is a frequent contributor to Continental Profiles.

PAS-2



GLOBAL SATELLITE SYSTEM FACT SHEET

Manufacturer:	Hughes Aircraft Company
Satellite:	HS 601
Operating Design Life:	15 years
Estimated Lift-Off Weight:	6,400 pounds

Satellite	**Ocean Region**	**Orbital Location**	**Delivery Date**
PAS -1*	Atlantic	45° WL / 315° EL	In Orbit
PAS-2	Pacific	191° WL / 169° EL	March 1994
PAS-3	Atlantic	43° WL / 317° EL	November 1994
PAS-4	Indian	292°/ 288° WL / 68°/ 72° EL**	February 1995

*GE Astro Series 3000

**PanAmSat is registered for both orbital locations

	Ku-Band	**C-Band**
Transponders:	16 x 54 MHz	16 x 54 MHz
Cross-Strapping Capability:	8 Transponders Ku to C	8 Transponders C to Ku
Transponder Output Power:	63 Watt	34 Watt

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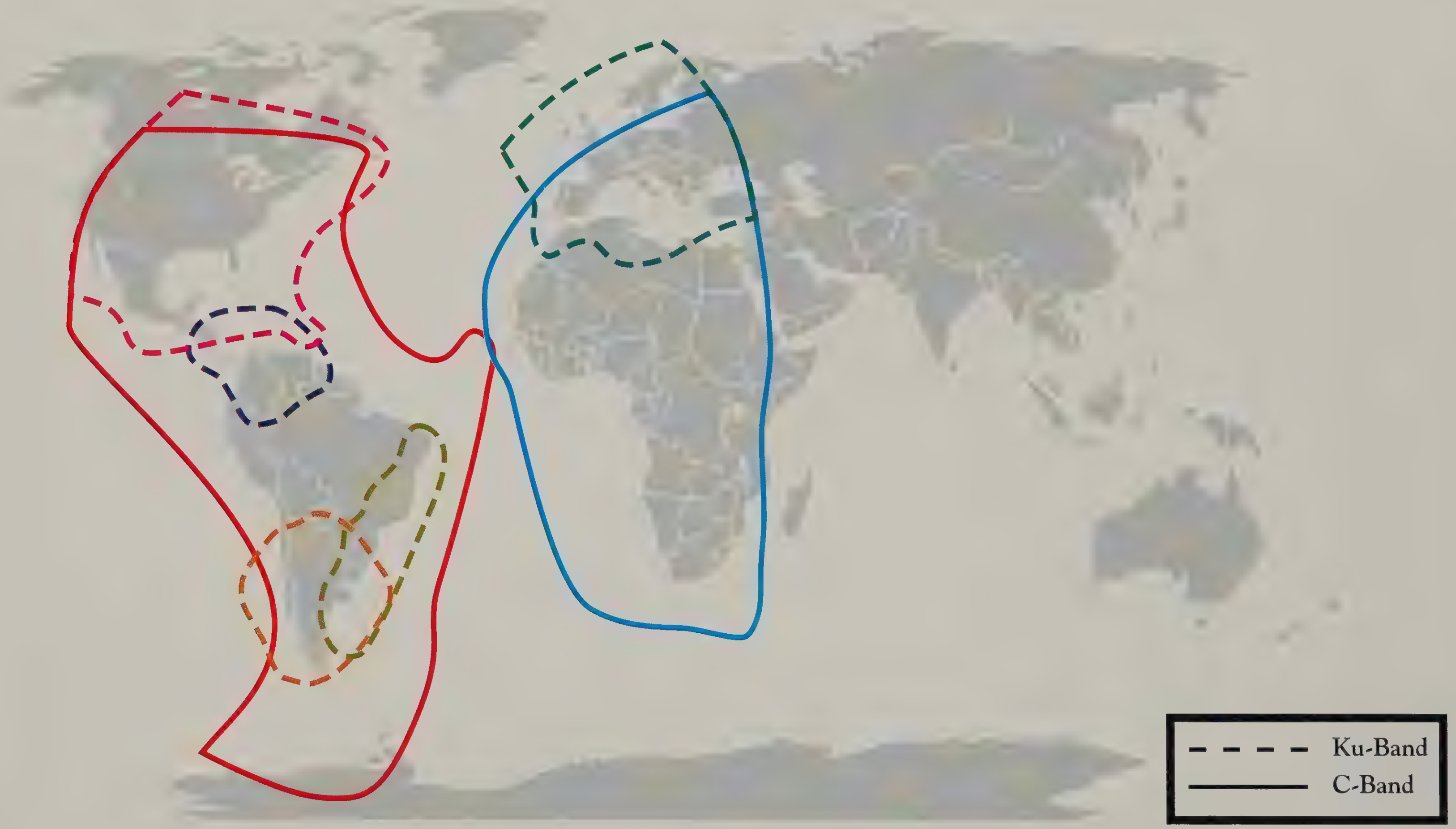
PAS-3



Global Satellite System Fact Sheet

Manufacturer:	Hughes Aircraft Company
Satellite:	HS 601
Operating Design Life:	15 years
Estimated Lift-Off Weight:	6,400 pounds

Satellite	Ocean Region	Orbital Location	Delivery Date
PAS -1*	Atlantic	45° WL / 315° EL	In Orbit
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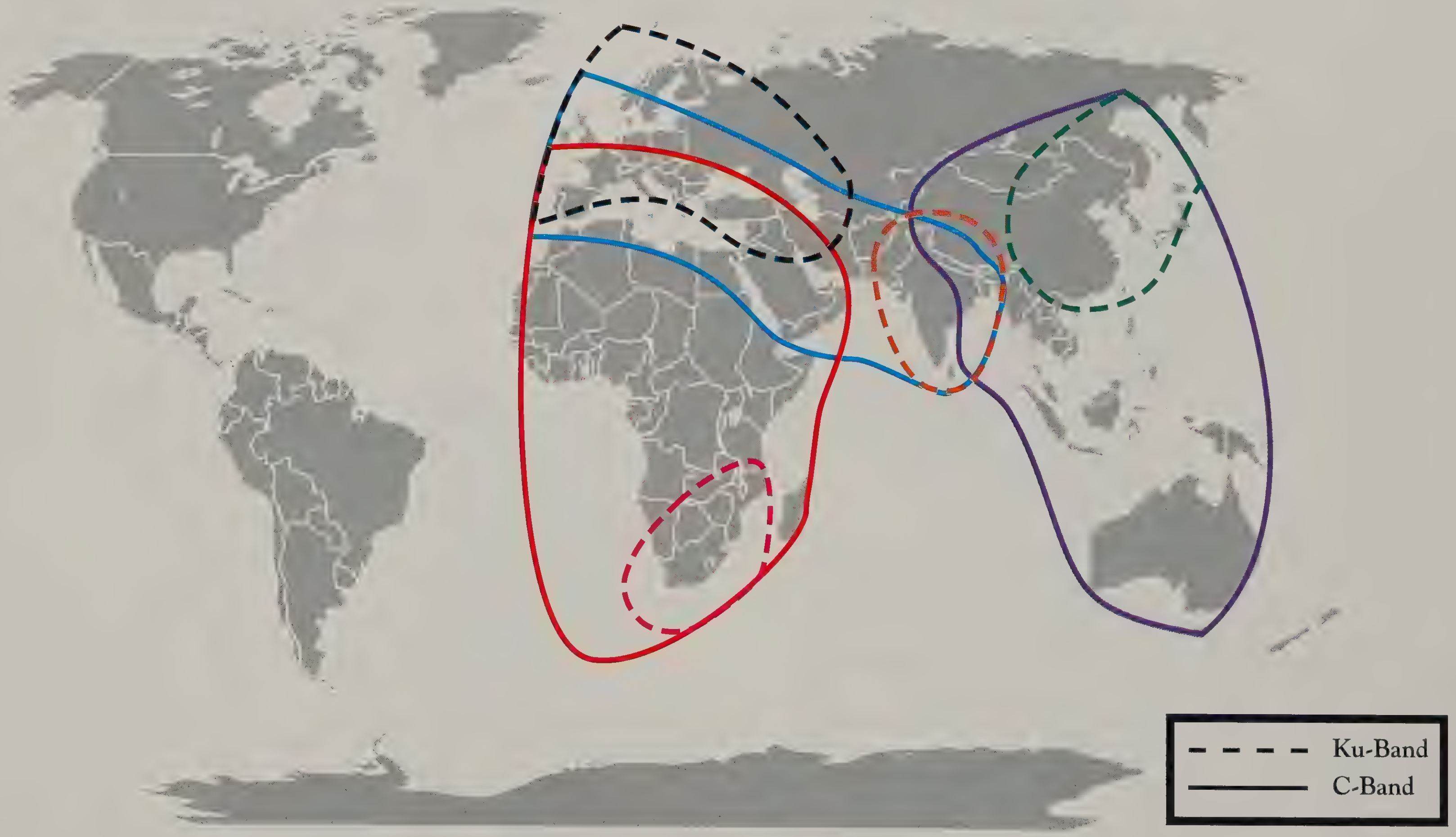
PAS-4



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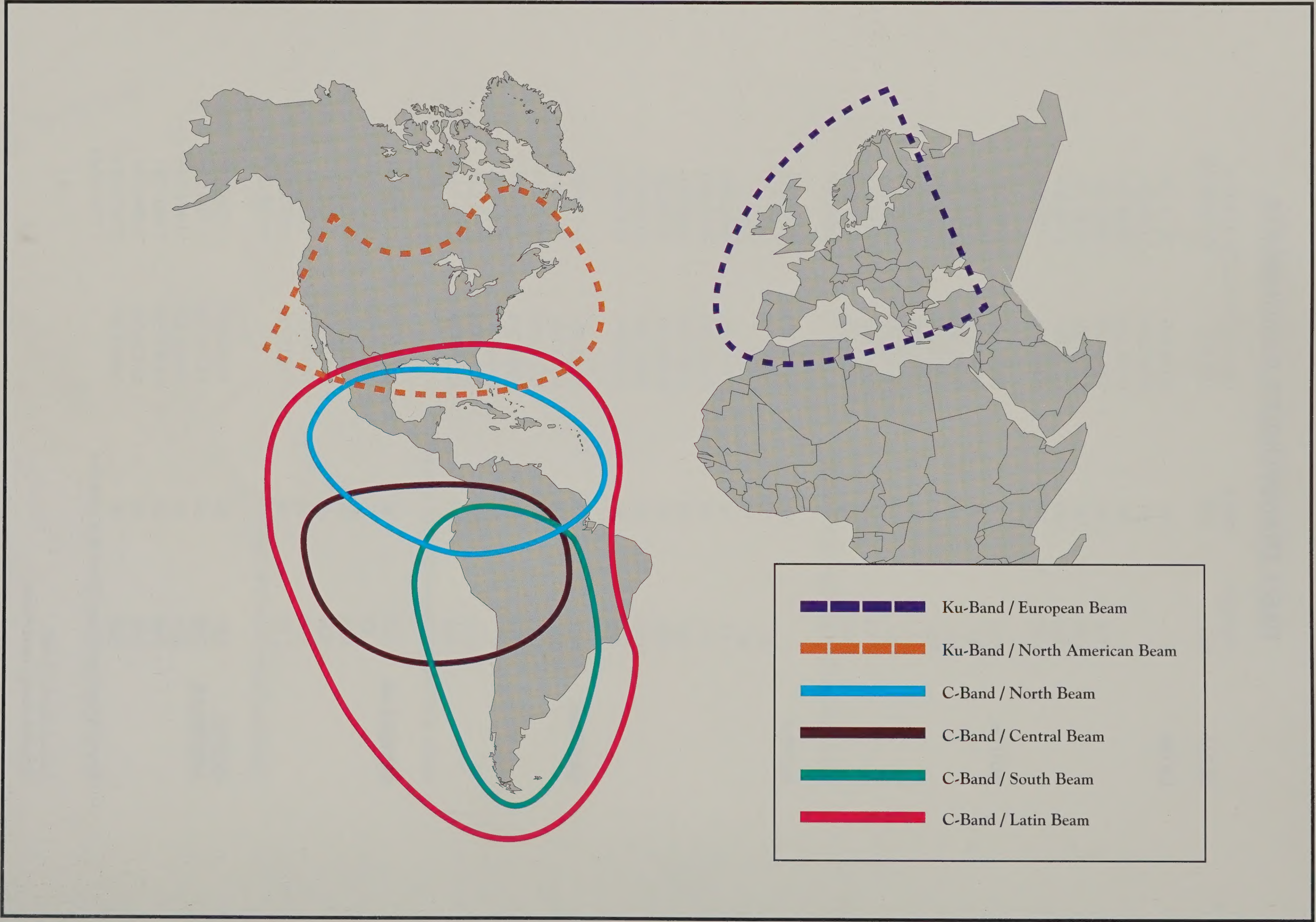
PanAmSat PAS-1
Atlantic Ocean Region C-Band and Ku-Band Downlink Beams



PAS-1 TRANSPONDER ASSIGNMENTS

BEAM	TRANSP. NO.	MAX. BW	CENTER FREQUENCY/POL UPLINK	DOWNLINK
LATIN	1	36	5948.0/V	3723.0/V
	3	36	6023.0/V	3798.0/V
	5	36	6108.0/V	3883.0/V
	13A	36	6184.0/V	3959.0/V
	13B	36	6220.0/V	3995.0/V
	15A	36	6344.5/V	4119.5/V
	15B	36	6384.5/V	4159.5/V
SOUTH	2A	18	5975.0/V	3750.0/V
	2B	18	5994.0/V	3769.0/V
	4A	18	6056.0/V	3831.0/V
	4B	18	6074.0/V	3849.0/V
	6A	18	6135.0/V	3910.0/V
	6B	18	6154.0/V	3929.0/V
	14A	36	6264.0/V	4039.0/V
	14B	36	6300.0/V	4060.0/V
Latin and South Beam Downlink Beacon				4196.5/V
NORTH	7	36	5965.0/H	3740.0/H
	9A	18	n/a	n/a
	9B	18	n/a	n/a
	11A	18	6115.0/H	3890.0/H
	11B	18	6135.0/H	3910.0/H
	16A	36	6207.0/H	3982.0/H
	16B	36	6243.0/H	4018.0/H
	18A	36	6365.0/H	4140.0/H
	18B	36	6406.0/H	4181.0/H
CENTRAL	8A	18	5996.0/H	3771.0/H
	8B	18	6014.0/H	3789.0/H
	10A	18	6076.0/H	3851.0/H
	10B	18	6094.0/H	3869.0/H
	12	36	6165.0/H	3940.0/H
	17A	36	6284.5/H	4059.5/H
	17B	36	6324.5/H	4099.5/H
North and Central Beam Downlink Beacon				3702.5/H
EUROPEAN	19A	36	14019.0/V	11479.0/H
	19B	36	14055.0/V	11515.0/H
	20A	36	14099.5/V	11559.5/H
	20B	36	14135.5/V	11595.5/H
	21A	36	14179.0/V	11639.0/H
	21B	36	14215.0/V	11675.0/H
European Beam Downlink Beacon				11544.05/H
NORTH AMERICAN	22A	36	14264.0/V	11724.0/H
	22B	36	14300.0/V	11760.0/H
	23A	36	14344.5/V	11804.5/H
	23B	36	14380.5/V	11840.5/H
	24A	36	14424.0/V	11884.0/H
	24B	36	14460.0/V	11920.0/H
North American Beam Downlink Beacon				11784.05/H

Effective March 17, 1992
Subject to change without notice.

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IS. CROZET
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Meridian of Greenwich
BOUVETÖEN
Heard
Antarctic Circle
Enderby Land
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HINDU KUSH
IRANIAN PLATEAU
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